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ABSTRACT

To investigate the influence of student modes of learning, or preferences for modes of learning, researchers at the Chulalongkorn University (Thailand) studied 97 Thai students who were beginners of English. It was hypothesized that: (1) aural and visual modes of listening and reading are related to achievement in English; (2) language aptitude, attitudes and motivation, non-verbal I.Q., study habits, and years of English are related to achievement in self-study programs; and (3) there are intra-relationships among the variables. The findings partially confirm the notion that language aptitude influences student modes of learning that in turn determines their English achievement and probably their English proficiency. Recommendations for teaching English as a foreign language in Thailand and for further research are offered. Details on the research instruments are appended. Contains 18 references. (LB)

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Relationship between Learning Modes and the Beginners' Success in English

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It is widely accepted that success in learning a foreign language depends on various learner variables. The study of the relationships between success in learning English of beginners and learner variables will pave ways for preparation of materials and the upgrading of teaching and learning processes to best suit the learners.

Researchers in Europe, America and Asia have discovered that learner variables which influence language achievement are composed of language aptitude, attitudes towards the teachers and the target cultures, general intelligence, verbal ability, nonverbal ability, and learning strategies. Besides these variables, modes of learning also explain success in learning a foreign language.

To investigate the influence of the student modes of learning or their preferences for modes of learning, a group of researchers at the Chulalongkorn University conducted a research on a group of Thai students who were beginners of English. In addition to modes of learning, other student variables were also included in the study in order to find the interrelationships as well as the intrarelationships that might exist among student English achievement, other student variables and learning modes. A research grant from the Thai government made this project possible.

The research was conducted with the purposes to (1) study the relationships between the beginners' success in learning English through an individualized approach and the modes of learning which were defined as consisting of visual, auditory and both visual and auditory modes combined; (2) study the relationships between the beginners' success in English and the other learner variables comprising language aptitude, attitudes and motivation, non-verbal I.Q., learning strategies and years of studying English, and (3) study the intra-relationships among the student variables which included learning modes and their combined strength in influencing student success in learning English through individualized programs.

The research has the following hypotheses:

1. The following learning modes are related to achievement in Eng-

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lish of Thai beginners of English in self-study programs:

1.1 the aural-visual modes through listening and reading
1.2 the visual mode through reading
1.3 the aural mode through listening

2. The following student variables are related to achievement in English of Thai beginners of English in self-study programs:

2.1 language aptitude
2.2. attitudes and motivation in learning English
2.3 non-verbal I.Q.
2.4 study habits
2.5 years of English

3. There are intra-relationships among the student variables mentioned in hypotheses 1 and 2.

The subjects of the study were 97 beginners of English (41 boys and 56 girls) from Sam Sen School, a well-known co-educational government institution in Bangkok. The subjects were divided into three groups with the same level of English proficiency judging from the scores they obtained from taking a CULI standardized English proficiency test, which consists of 6 subparts: *Testing the Listening Skills* — Sound Discrimination, Sentence Comprehension, Picture Identification — and *Testing the Reading Skills* — Picture Identification, Sentence Completion and Passage Comprehension. Subjects in Group I (N = 31) studied through aural-visual modes using both the listening and reading programs. Subjects in Group II (N = 34) studied through the visual mode using only the reading program, and Group III studied in a language laboratory, whereas the other two groups had their lessons in normal classrooms.

The self-study English listening and reading programs consist of 20 lessons selected and adapted from the Pacific English Series. Each lesson contains a glossary, a text not exceeding 15 lines, comprehension exercises, grammatical forms and a short test. Details of the programs are in Table I below.

The researchers used the following steps in collecting the data:

1. Administering the study habits inventory, the Thai Language Aptitude Test and the Non-verbal I.Q. Test in the first three days of the experiment. (See the Appendix for details of the instruments.)

2. Each group studied for five days for a total of twenty hours. Four self-study lessons were given each day, two in the morning and two in the afternoon. At the beginning of each session, the subjects were given an explanation sheet containing glossary for and pictures about the story they were about to read, listen or listen - read. Then, they started

Table1
Contents and Language Points of the Self-Study English Lessons

Lesson	Content	Language Points
1.	Flowers and Fruits	One, Ones
2.	Mana Is Ill	Yes-No Questions
3.	Dates and Months of the Year	Time, Dates
4.	Breakfast	Uncountable Nouns
5.	On Saturday	Present Tense (Habit)
6.	Games	Adverb of Frequency (Every, often)
7.	Visitors	Like to, S-V Agreement
8.	Malees' Birthday	Question Words, Let's
9.	Vichai's Savings Box	Possessive
10.	The Lazy Donkey	Negative, Doesn't like
11.	The School Concert	Passive (It is made of), Adjectives e.g. Excited
12.	The Greedy Cat	Verb of Motion, Continuous Tense
13.	End of Term	Countable Nouns, Uncountable Nouns (Review)
14.	Tea for Three	Request
15.	Umbrella Village	Location, There is, Has
16.	The Wind and the Sun	Comparison, Imperative
17.	Peter and Cowboy	Adverbs of Time, Adverbs of Place (Review)
18.	Seventy Cats and One Dog	Pronouns (Review)
19.	How Lek Saved His Friend	Past Tense
20.	Going to a Football Match	Modals, Questions (Review)

the lessons which were followed by exercises. To check their work, the subjects checked out the answer key from the supervisor who would explain their mistakes and answer any questions which they might ask.

3. After having completed the twenty lessons, the subjects took a two hour achievement test according to the mode of study of their group, i.e., group I took the listening - reading achievement test, group II the reading test, and group III the listening test. The attitude rating scales were also administered on the same day as the achievement test. (See Appendix for details of the instruments.)

Table II presents the arithemetic means, standard deviations of the variables in the study and the number of cases.

In analysing the data, the SPSS program was used to find the Cronbach Alpha of the adapted and constructed instruments, i.e., the non-verbal I.Q. test and the achievement test, while the attitudinal scales were analysed by the Prapphal, Oller and Byler method. Construct validity and reliability indices were arrived at through the analysis of convergence

Table II
Mean, S.D, N, of the Variables in the Study

Variable	N	$\bar{X}$	SD
1. Years of English study	84	6.698	2.353
2. Age	92	12.989	.763
3. Language aptitude	92	55.880	7.536
3.1 Number learning	92	10.011	3.943
3.2 Sound and symbol association	92	10.174	2.583
3.3 Rote learning	92	12.283	2.649
3.4 Language	92	13.652	2.531
3.5 Grammatical sensitivity	92	9.761	600
4. Attitudes and motivation in language learning	96	398.708	45.079
4.1 Learning as a tool	96	123.177	15.196
4.2 Learning as a means to communicate with the native speakers of English	96	138.729	18.614
4.3 Perseverance	96	136.802	17.286
5. Study habits	96	29.021	5.275
6. Non-verbal I.Q.	96	19.260	4.833
7. English proficiency	96	51.813	9.368
8. English achievement	97	32.351	8.531

of means within each triplets, the predicted signs of correlations and the significance and magnitude of correlations. The Cronbach Alpha analysis indicated the reliability of the constructed and adapted instruments as follows: Non-verbal I.Q. .87, Achievement Test .91, Language learning as a tool .83, Language learning as a means to communicate .85, Perseverance .82, Total attitudes — motivation rating scales .83. In order to test the hypotheses, Person-product moment correlations, t-test analysis, multiple regression, analysis of variance and principal component analysis using variance rotated factor matrix were performed on the obtained data.

Table III presents the first-step analysis of the relationships illustrated by Pearson-product moment correlations.

The correlations in the triangle are inter-relationhips among the components of language aptitude and total aptitude. The relationships with total aptitude were significant at .001. Language analysis, and Number Learning however, were not correlated with other aptitudinal attributes, nor with English proficiency and achievement. On the contrary, Sound-Symbol Association and Grammatical Sensitivity were significantly related to English proficiency and achievement at .05 ~ .001. Besides, Rote Learning was also significantly related to English achievement at .001.

The correlations in the rectangle present the relationships among the attitudinal and motivational variables. the intercorrelations were from moderate to high (.65 ~ .86) and were significantly related to the beginners' English proficiency and achievement at .05 ~ .001.

The correlations in the smaller rectangle present the relationships between study habits and attitudinal-motivational variables at .01 ~ .001. Study habits, however, were not correlated with English proficiency or achievement.

Spatial relations were only significantly related with Learning English as a tool variable at .05. They, however, had no relationships with other attitudinal-motivational variables, English proficiency nor English achievement.

Years of English revealed no significant relationships with any variables.

The relationship between English proficiency and achievement was significant at .001 with $r_{xy} = .388$, indicating that both variables shared 15% common variance. Both variables were significantly relating to

Table III

Correlation Matrix of the Dependent and Independent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Years of English	1.000	.087	.041	−.037	−.123	−.095	.000	.008	.081	.136	−.005	.048	.061	.187	.010
2. Number Learning		1.000	.162	.125	.185	−.033	.656***	−.065	−.037	−.025	−.004	.042	.006	.162	.053
3. Sound-symbol association			1.000	.282	.312	.020	.628	.075	.157	.134	.248	.268	.251	.386	.241
4. Rote-learning				1.000	.421	−.075	.695	.194	.088	.125	.243	.223	.229	.162	.470
5. Grammatical					1.000	−.012	.682	.014	.127	.097	.120	.101	.125	.294	.422
6. Language Analysis						1.000	.040	.85	.078	.060	.078	.060	.075	.120	.053
7. Language Aptitude (2+3+4+5)							1.000	.073	.115	.115	.218	.230	.217	.378	.420
8. Study Habits								1.000	−.013	.262***	.356***	.462***	.414***	.183	.142
9. Non-verbal I.Q.									1.000	.207	.155***	.029***	.144***	.162*	.165**
10. Attitudes towards Learning as a tool										1.000	.646***	.669***	.860***	.213**	.258***
11. Learning as a means to communicate											1.000	.683***	.892***	.319***	.326**
12. Perseverance												1.000	.891***	.286**	.279***
13. Attitudes and Perseverance (10+1+12)													1.000	.313***	.329***
14. English Proficiency														1.000	.388***
15. English Achievement															1.000

* significant at .05
** significant at .01
*** significant at .001

other variables, except for years of English, number learning, language analysis and study habits, with which they did not have any significant relationships.

Table IV presents the in-depth structural relationships through principal components analysis using variance rotated factor matrix.

Table IV
The In-Depth Structural Relationships

	Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	h^2
1.	Number Learning	−.171	.003	.606	−.162	−.039	.425
2.	Sound-Symbol Association	.141	.420	.526	.060	.071	.482
3.	Rote Learning	.209	.724	.062	−.119	−.229	.638
4.	Grammatical Sensitivity	−.096	.735	.112	.139	.122	.596
5.	Language Analysis	.089	−.048	.042	.062	.915	.853
6.	Attitudes toward Learning as a Tool	.723	.129	−.026	.456	.007	.749
7.	Attitudes toward Learning as a Means to Communicate	.803	.248	.032	.177	.064	.743
8.	Perseverance	.883	.101	.049	.005	−.035	.793
9.	Study Habits	.681	−.084	.033	−.328	.111	.592
10.	Non-verbal I.Q.	.035	.127	−.001	.839	.071	.726
11.	Years of English	.114	−.386	.569	.332	−.340	.712
12.	English Proficiency	.233	.309	.637	.199	.209	.613
13.	English Achievement	.287	.609	.113	.248	−.005	.528
	Eigen Value	2.672	1.970	1.411	1.304	1.093	8.450
	Mean Communality	.206	.152	.109	.100	.084	.650

The variables which bore in-depth structural relationships were:

Factor 1: Attitudes and Motivation (Learning as a tool, Learning as a means to communicate and perseverance), Study habits and English achievements through a self-study program.

Factor 2: Language aptitudes in sound-symbol association, in rote learning and in grammatical sensitivity, years of English, English proficiency and English achievement.

Factor 3: Language aptitudes in number learning, sound-symbol associations, years of English and English proficiency.

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Factor 4: Attitude toward learning English as a tool, study habits, years of English and spatial relations.

Factor 5: Language apitude in language analysis and years of English.

In analysing the explanatory and predictive relationships among modes of learning, other student variables and English achievement, multiple regression analyses were performed and yielded the results presented in Table V.

TABLE V
Multiple Regression Analysis of the Relationships among Student Variables, Modes of Learning and English Achievement

Source	R^2	r	df	SS	MS	F
Student Variables and Learning Modes	.533		7	3080.855	440.122	11.555 **
Student Variables	.210		5.	1216.780	243.356	3.889 **
1. Language Aptitude	.074	.329	1	428.616	428.616	11.253
2. Attitudes and Motivation	.023	.356	1	133.388	133.388	3.502
3. Study Habits	.001	.090	1	6.018	6.018	.158
4. Non-verbal I.Q.	.004	.208	1	24.872	24.872	.653
5. Years of English	.006	.020	1	.419	.419	.011
Learning Modes	.323		2	1864.075	932.038 **	24.470
Residual	.467		71	2704.334	38.089	
Total	1.000		78	5785.189		

** p $\leq$ .01

From the table we can conclude that:

1. Student variables and modes of learning were significantly related to English achievement at .01 ($F = 11.555$, $df = 771$, $p \leq .01$) and shared 53% common variance ($R^2 = .533$).
2. Learning modes and significant relationships with English achievement at .01 and could explain it by 32% ($R^2 = .323$, $F = 24.740$, $df = 2, 71$, $p \leq .01$).

To compare the English achievement means of the three groups learning through the aural-visual modes, the visual mode, and the

aural mode, Scheffe tests were performed revealing that learning through the aural-visual modes was not significantly different from the visual mode; however, English achievement through aural-visual modes and visual mode was significantly higher than the achievement of the group using only the aural mode.
($\overline{X}_1 = 36.647$, $\overline{X}_2 = 35.581$, $\overline{X}_3 = 24.656$)

The above findings might also have resulted from the subjects' familiarity with learning through the visual mode more than with the aural mode. However, before the experiment the three groups were equivalent in their English proficiency and the aptitude in listening measured by the sound-symbol association and the number learning subparts of the aptitude tests.

3. Student variables could explain English achievement by 21% and had a significant relationship at .01 ($R^2 = .210$, $F = 3.889$, $df = 5, 71$, $p \leqslant .01$).
4. Language aptitude was significantly related to English achievement at .01 and could explain English achievement by 11% ($R^2 = .108$). Its relationship with other variables was also significant at .01 and could explain them by 7% ($R^2 = .074$, $F = 11.253$, $df = 1, 71$, $p < .01$).
5. Attitudinal and motivational variables could explain English achievement by 13% ($r^2 = .127$); but when combined with other variables, the relationship with English achievement became insignificant and could explain it by only 2% ($R^2 = 0.23$, $F = 3.506$, $df = 1.71$, $p < .05$). This was so because attitudes were related to other variables causing low unique variance (r_{xy} with language aptitude = .201, to study habits = .389, and with spatial relations = .194).
6. Study habits had no relationship with English achievement ($F = .158$, $df = 1, 71$, $p \geq .05$), could explain it by only 1% ($r^2 = .008$) and also showed very low correlation with other variables ($R^2 = .001$). This might be explained by the fact that study habits had quite a strong relationship with attitudes and motivation ($r = .359$).
7. Non-verbal I.Q. had no relationship with English achievement or other variables. This variable could explain only 4% of English achievement and only 1% of other variables.
8. Years of English had no relationship with English achievement ($F = .011$, $df = 1, 71$, $p \geq .05$), nor could it explain English achievement ($r = .020$, $R^2 = .000$). This might be caused by the similarity in the subjects' years of English and the short span of the experiment.

The significance of modes of learning is revealed in findings numbered 1 and 2.

To study the relationships between listening aptitude, which may

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theoretically influence the student aural mode learning, and English achievement on the one hand and English proficiency, on the other, t-test analyses were performed. The subjects were divided into two groups — the high listening aptitude and the low listening aptitude. The cut-off score was obtained from the calculation of listening aptitude mean plus .95 confidence interval. Table VI presents the findings from t-test analysis.

Although the high listening aptitude group did better than the low-listening aptitude group in learning English, the difference was slight and not significant at .05.

Since proficiency has been proven to be related to aptitude and achievement (Carroll, 1941, 1959 A, B, 1963, 1971, Jakobovits, 1969, 1970), the t-test analysis was also performed to find out the difference in English proficiency between the high-listening aptitude group and the low-listening aptitude group.

From the table, we can see that the group with high aptitude in listening had higher English proficiency than the group with low aptitude in listening. The difference in proficiency was much greater than that in achievement, however, the difference is only close to the .05 level of significance.

The findings in Tables VI and VII partially confirm the notion that language aptitude influences student modes of learning which, in turn determine their English achievement (Table V) and probably their English proficiency (Table VII).

Table VI
Difference in English Achievement between the High-Listening Aptitude Group and the Low-Listening Aptitude Group

Variable	N	$\bar{X}$ English Achievement	S.D.	t-value	p-value
High-listening aptitude	49.	32.816	8.810	.680	.489
Low-listening aptitude	43	31.581	8.556		

Table VII
Difference in English Proficiency between the High-Listening Aptitude Group and the Low-Listening Aptitude Group

Variable	N	$\bar{X}$ English Proficiency	S.D.	t-value	p-value
High-listening aptitude group	49.	53.592	9.946	1.93	0.056
Low-listening aptitude group	43	49.814	8.614		

From the results of the experiement we may conclude that for Thai beginners of English, learning modes could explain English achievement by 32% and that learning through the aural-visual modes and the visual mode significantly yielded higher achievement scores than learning through the aural mode only. However, two significant intervening variables, worthy to be considered were the beginners' general familiarity with visual learning more than aural learning and their equal aptitude in listening. The latter factor was discovered to be nearly related to the beginners' English proficiency (Table VII). We may also conclude that for Thai beginners of English, English proficiency, English achievement and language aptitude had related in-depth structural relationships. The communal factor among the three variables might be general intelligence which was related to years of English, but not to non-verbal I.Q. nor to study habits and attitudes towards learning English as revealed in Table IV. Table IV also indicates that English achievement and proficiency of Thai beginners of English had both similar and dissimilar factors in their in-depth structrual relationships. The similarity was that both measure general intelligence. The dissimilarities were two — fold — (1) English achievement was related to attitudes and motivation, whereas English proficiency was related to language aptitude in listening measured by the number learning and sound-symbol associations subtests; and (2) English achievement test shared a common factor with attitudes and motivation indicating that the test might be related to acquisition more than the English proficiency test which might be related more to formal learning.

Conclusions on the relationships among other variables included in the study may be made as follows:

1. Student variables could explain English achievement by 21%. The independent variable having the strongest relationships with English achievement of the beginners in English was language aptitude. Even

though attitudes and motivation had no predictive relationship with English achievement according to the multiple regression analysis, these variables were related to English achievement in the Pearson product moment correlations (r^2 = .31). Thus, language aptitude and attitudes-motivation towards English learning were related to English achievement of the beginners in a self-study program.

2. Years of English and study habits were not significantly related to English achievement implying that success in English can be achieved through effectively managed programs, even though short, such as an intensive one.

3. Attitudes and motivation and study habits had relationships with English achievement, but not with English proficiency, years of English, nor language aptitude. Therefore language aptitude and attitudes might not have any in-depth structural relationships. The conclusion is in line with Krashen (1981) who stated that language aptitude was related to learning whereas attitudes and motivation were related to acquisition.

4. Attitudes towards learning English as tool, as a means to communicate and perseverance were in the same factor indicating construct validity and concurrent validity of the instruments. Language aptitudes, however, were grouped into 3 factors by the principal component analysis, not into 5 parts as in the test format which indicate the test face validity.

5. The non-verbal I.Q. test had no relationships with English achievement.

The study led to some recommendations for the teaching of English as a foreign language for international communication in Thailand and further research as follows:

1. Other student variables besides language proficiency should be considered in planning a course for beginners such as their language aptitude, attitudes and motivation.

2. Self-study listening lessons could very well be used in activating skills courses which are supplementary to the core courses since the research yielded positive results of using listening to enhance English proficiency of beginners of English as well as attitudes towards learning the language.

3. The self-study listening and reading programs should not contain materials of the same level of difficulty; the former should be easier than the latter in view of the students' familiarity with learning through the visual mode more than through the aural mode. Glossary and pictures should be included to make the lessons easier and more appealing.

4. Comparisons of English learning through the three modes

should be made for teacher-taught programs.

5. Comparative studies on the roles of student variables in language learning should be conducted using intermediate and advanced learners as subjects to discover whether there are any similarities or differences with beginners. The studies may shed more light on langauge acquisition processes.

6. Studies on the influences of learner variables should be made with learning the mother tongue and other foreign languages besides English in order to help shape language curriculum planning by using supportive elements existing between learning the mother-tongue and a foreign language.

7. Control of students' previous language exposure should be made.

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APPENDIX

Research Instruments

The instruments were composed of:

1. Standardized tests

1.1 The Chulalongkorn University Language Institute English Proficiency Test Level II consisting of 6 subparts as follows:

Testing the Listening Skills

Part I: Sound Discrimination
Part II: Sentence Comprehension
Part III: Picture Identification

Testing the Reading Skills

Part IV: Picture Identification
Part V: Sentence Completion
Part VI: Passage Comprehension

1.2 Thai Language Aptitude Test

(TLAT Form 1 Level Ia) consisting of 5 subparts as follows:

Part I: Number Learning
Part II: Phonetic Coding
Part III: Spelling Clues

Part IV: Grammatical Sensitivity
Part V: Language Analysis

The test was developed under the guidance of Dr John B. Carrol originally and later Dr Lyle F. Bahcman.

1.3 CULI Learning Strategies Form A consisting of 42 statements for students to check yes or no according to their study habits and learning strategies.

2. Instruments adapted from existing standardized measures

2.1 Attitudes towards Learning English developed by Prapphal, Oller and Byler.* The rating scales consisted of 81 statements divided into 3 subparts with 27 items

2.1.1 Instrumentality divided into 3 subparts: Academic Purposes, Socio-Cultural Purposes, and Jobs and Personal Benefits.

2.1.2 Integrativeness divided into 3 subparts: Personal Preferences, Ethnic Identity and Self-Concept.

2.1.3 Willingness to Work divided into 3 subparts: In Class, Out of Class and Need Achievement.

The reliability of the instrument was established through the analysis of convergence of means within each triplet of statements assessing the same attitude valence, signs of correlations and significance and magnitude of correlations.

2.2 A non-verbal intelligence consisting of 27 items developed from Differential Aptitude Tests Forms M and S.

3. The constructed instruments

3.1 20 self-study lessons via the visual mode and the aural mode.

3.2 The achievement test consisting of 4 parts with 48 test items. The test techniques used were short-answer, multiple choice and completion.

The Cronbach alpha analysis indicated the reliability of the constructed or adapted instruments as follows:

— Non-verbal I.Q.	.87
— Achievement Test	.91
— Language learning as a tool	.83
— Language learning as a means to communicate	.85
— Perseverance	.82
— Total Attitudes — Motivation Rating Scales	.93

*K Prapphal, J.W. Oller, Jr., and M. Byler. Affective Measures: Still a Pandora's Box? A monograph published by the SEAMEO Regional Language Centre, Singapore, 1982.